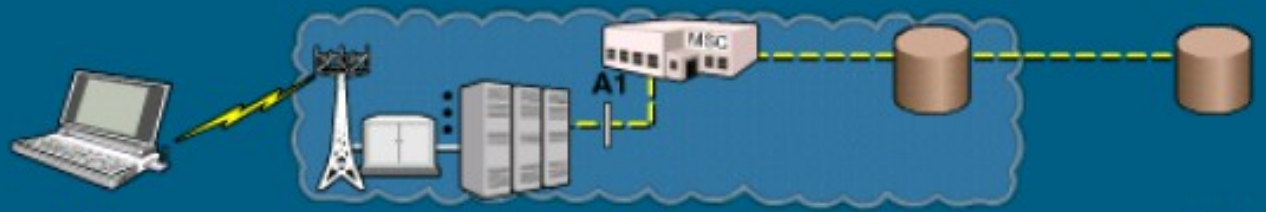
CDMA2000
Examples – Call Session/Flow

CDMA2000 OPERATIONAL SCENARIOS

- A Packet Call/Session Scenario - A High Level View
- **Packet Call/Session Message Flow Examples**

MS REGISTRATION AND AUTHENTICATION



MS	BS	MSC	VLR	HLR
1. Registration w/ Authentication info				
	2. A1: Complete L3 Info Message w/ Authentication info			
		3. TCAP: Authentication Req		
			4. TCAP: Authentication Req	
			5. TCAP: Authentication Response	
		6. TCAP: Authentication Response		
		7. TCAP: Authentication Notification		
			8. TCAP: Register Notification	
			9. TCAP: Registration Response	
		10. TCAP: Registration Response		
	11. A1: Registration Complete			
12. Registration Complete				
13. MS is registered and can originate Packet Data Service at any time				

TCAP = SS7 Transaction Capabilities Application Part
VLR = Visitor Location Register
HLR = Home Location Register
BS = BTSs + BSC
BTS = Base Transceiver Station

Source: IS-2001 IOS (Interoperability Specification); also IS-2000.5-A-2

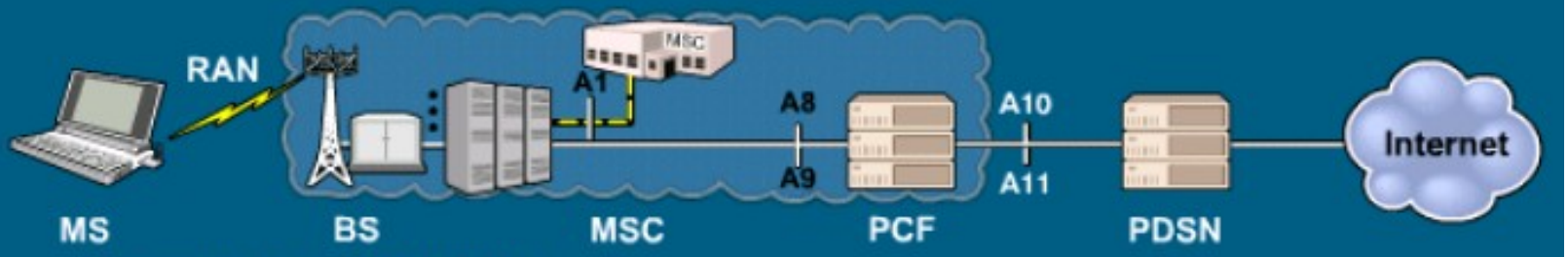
CDMA2000 SERVICE OPTIONS
SOME EXAMPLES

Service Option*	Type of Service	Associated Standard
1	Basic 8 Kb/s vocoder	TIA/EIA-96-B
3	EVRC	TIA/EIA/IS-127-A
6	SMS @ 9.6 Kb/s	TIA/EIA/IS-637
13	Group 3 fax @ 9.6 or 14.4 Kb/s	TIA/EIA/IS-707
15	IP Packet Data Service @ 14.4 Kb/s	TIA/EIA/IS-707
17	13 Kb/s vocoder	TIA/EIA/IS-733
33	IP Packet Data Service @ 144 Kb/s	TIA/EIA/IS-707-A-1
35	Location Services @ 9.6 Kb/s	TIA/EIA/IS-801

*There are also Service Option numbers assigned to each of the major manufacturers to support proprietary services

Source: TIA/EIA/TSB58-B

MS INITIATED PACKET CALL ESTABLISHMENT AND MOBILE IP REGISTRATION



1. Origination (with SO=33, DRS=1)
2. BS ACK Order
3. A1: Service Request
4. A1: Assignment Request
5. TCH Establish
6. A9: Setup-A8 transport
7. A11: Registration Request
8. A8 Establish / A10 Establish
9. A11: Registration Reply
10. A9: Connect A8 Transport
11. A1: Assignment Complete
12. Establish PPP connection and Mobile IP Registration
13. Transmit packet data

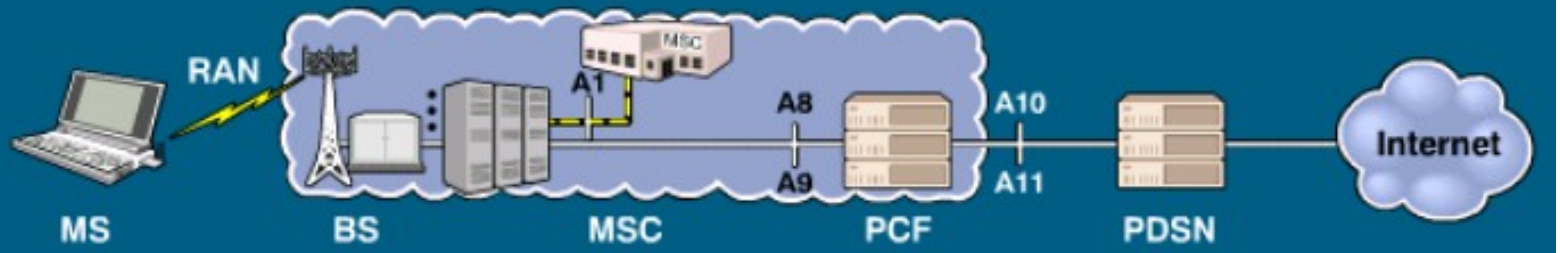
Source: IS-2001 IOS (Interoperability Specification); also IS-2000. 5-A-2

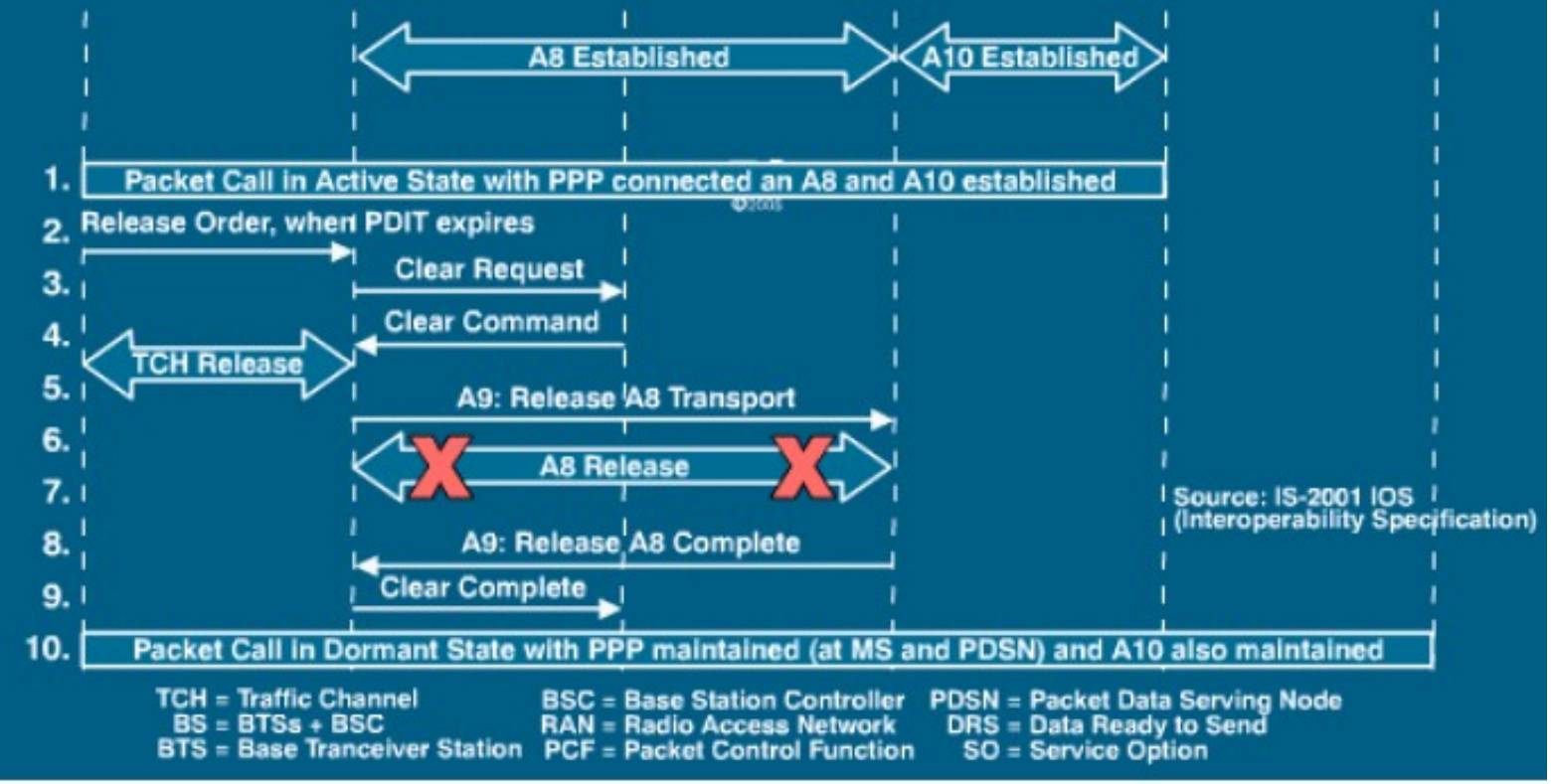
TCH = Traffic Channel
BS = BTSs + BSC
BTS = Base Tranceiver Station

BSC = Base Station Controller
RAN = Radio Access Network
PCF = Packet Control Function

PDSN = Packet Data Serving Node
DRS = Data Ready to Send
SO = Service Option

MS INITIATED CALL RELEASE TO DORMANT STATE



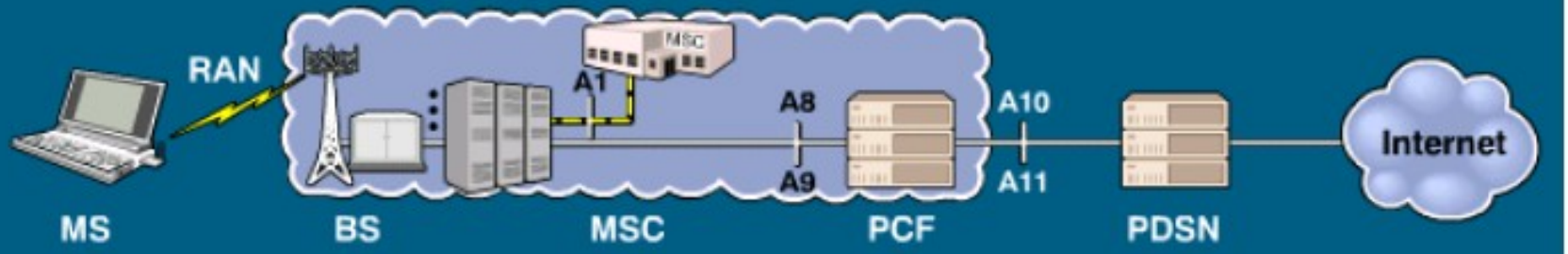


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SO = Service Option

BS INITIATED CALL RELEASE TO DORMANT STATE



A8 Established

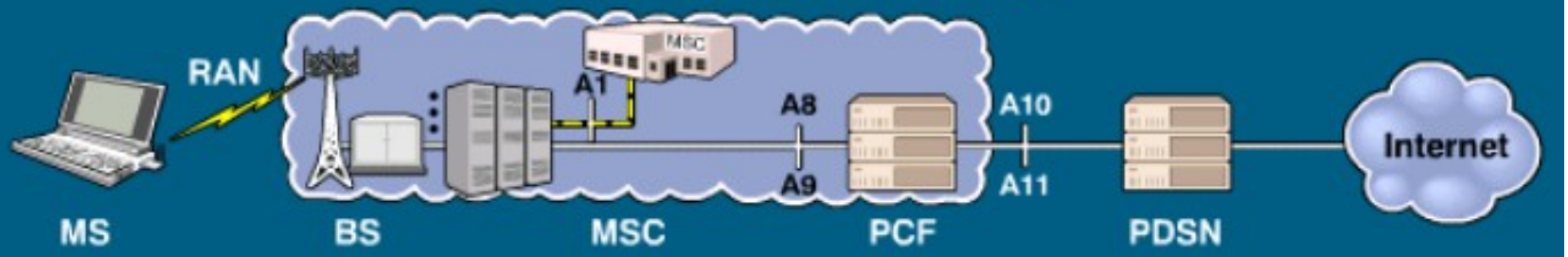
A10 Established

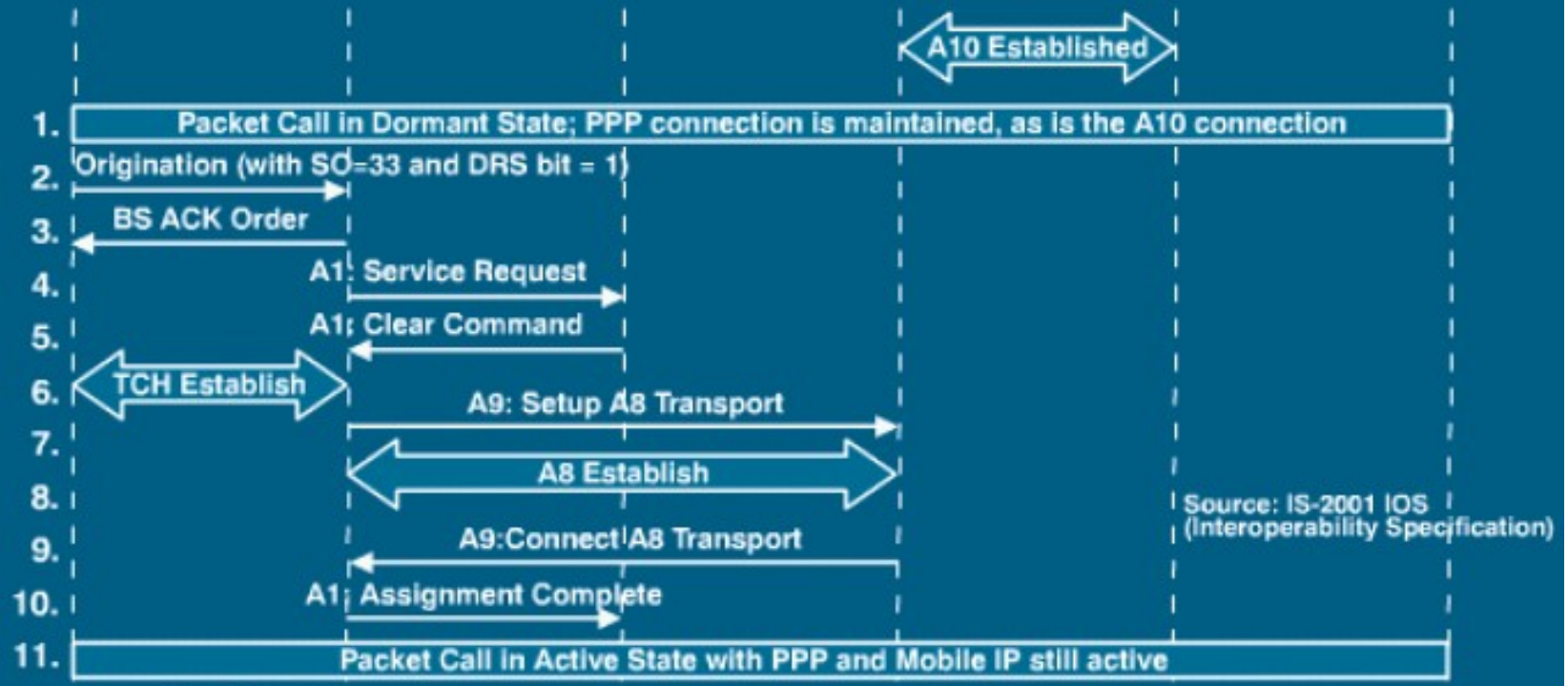
1. Packet Call in Active State with PPP connected an A8 and A10 established
2. Clear Request, when PDIT timer expires
3. Clear Command
4. TCH Release
5. A9: Release A8 Transport
6. A8 Release
7. A9: Release A8 Complete
8. Clear Complete
9. Packet Call in Dormant State with PPP maintained (at MS and PDSN) and A10 also maintained

Source: IS-2001 IOS (Interoperability Specification)

TCH = Traffic Channel
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MS INITIATED PACKET CALL RE-ACTIVATION FROM DORMANT STATE



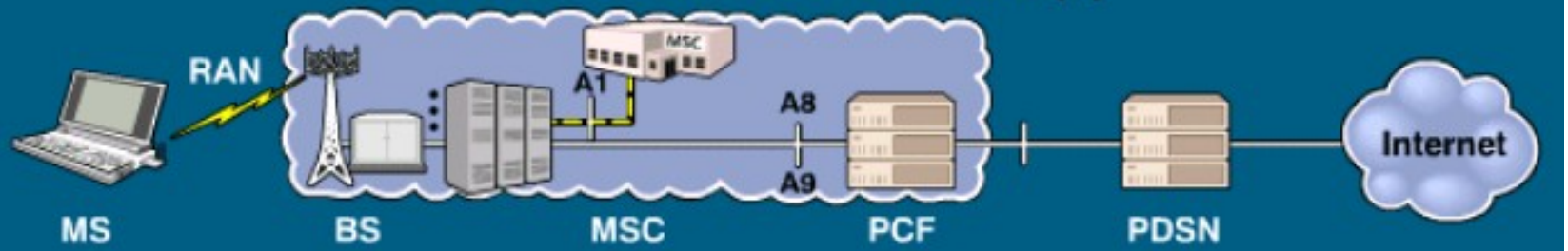


TCH = Traffic Channel
BS = BTSs + BSC
BTS = Base Tranceiver Station

BSC = Base Station Controller
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PCF = Packet Control Function

PDSN = Packet Data Serving Node
DRS = Data Ready to Send
SO = Service Option

NETWORK INITIATED CALL RE-ACTIVATION FROM DORMANT STATE (1)



A10 Established

1. Packet Call in Dormant State; PPP connection is maintained, as is the A10 connection
2. Packet Data
3. A9: BS Service Request
4. A1: BS Service Request
5. A1: BS Service Response
6. A9: BS Service Response
7. A1: Paging Request
8. Page Message
9. Page Response Message
10. A1: Complete Layer 3 Info: Paging Response
11. BS ACK Order

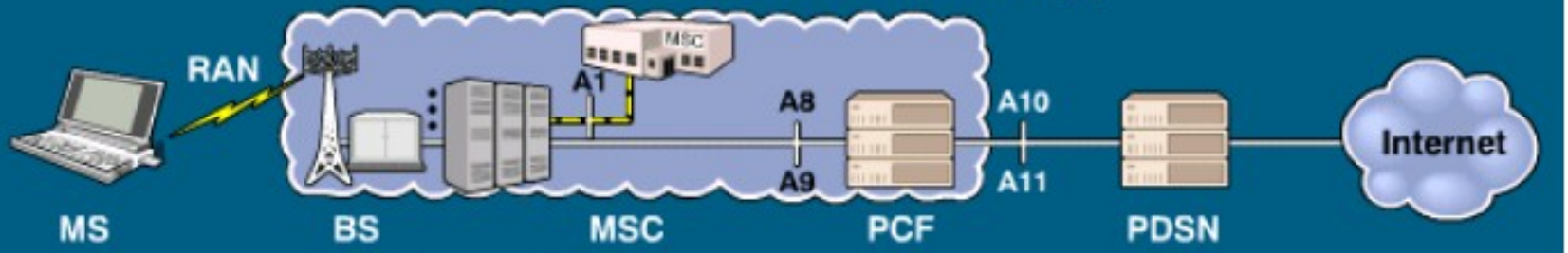
Source: IS-2001 IOS (Interoperability Specification)

TCH = Traffic Channel
BS = BTSs + BSC
BTS = Base Tranceiver Station

BSC = Base Station Controller
RAN = Radio Access Network
PCF = Packet Control Function

PDSN = Packet Data Serving Node

NETWORK INITIATED CALL RE-ACTIVATION FROM DORMANT STATE (2)

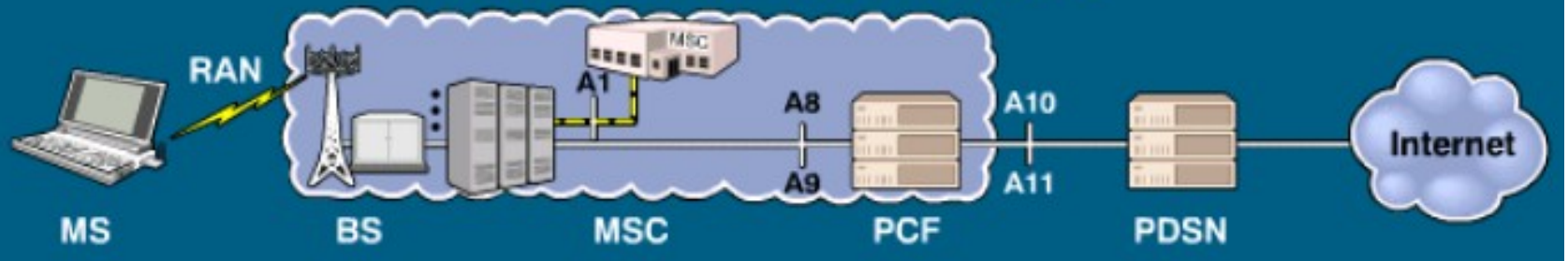


12. A1: Assignment Request
13. TCH Establish
14. A9: Setup A8 transport
15. A8 Establish
16. A9: Connect A8 transport
17. A1: Assignment Complete
18. Packet Call in Active State with PPP still connected

Source: IS-2001 IOS (Interoperability Specification)

TCH = Traffic Channel
BS = BTSs + BSC
BTS = Base Tranceiver Station
BSC = Base Station Controller
RAN = Radio Access Network
PCF = Packet Control Function
PDSN = Packet Data Serving Node

MS POWER DOWN WITH DATA SESSION RELEASE TO NULL STATE



1. Packet Call in Dormant or Active State with PPP connected
2. Release Order (with power down indication)
3. A1: Clear Request
4. A1: Clear Command
5. Release Order
6. A9: Release A8 transport
7. A11: Reg Req with Lifetime = 0
8. Release A8 / Release A10
9. A11: Reg Reply
10. A9: Release A8 Complete
11. A1: Clear Complete
12. Packet Data Session is Terminated

TCH = Traffic Channel
BS = BTSs + BSC
BTS = Base Tranceiver Station
BSC = Base Station Controller
RAN = Radio Access Network
PCF = Packet Control Function
PDSN = Packet Data Serving Node
DRS = Data Ready to Send
SO = Service Option

End of Session